

REMARKS

Claims 1, 4-20 are pending in the application. Claim 1 is herein amended. Claim 4 is withdrawn from consideration. No new matter has been presented.

Rejection under 35 USC 103(a)

Claims 1-3 and 5-20 were rejected under 35 USC 103(a) as being obvious over Kataoka et al. (U.S. Patent No. 6,235,331) and/or Granata (WO 02/058793) in view of Chavali et al. (US 2001/0031275), Maguire et al. (DWPI Abstract, 1995-054394), Chen et al. (US 2002/0156051) and Wechter (U.S. Patent No. 6,242,479).

The Decision of Appeal (hereinafter "Decision") alleged as follows:

A showing of unexpected results must be commensurate in scope with the breadth of the claims. Grasselli, 713 F.2d at 743. Here, Appellants argue that the claimed composition has dramatically improved oxidative stability. However, claim 1 does not require any particular improvement in stability, e.g., in terms of degree, duration, storage conditions, etc. Similarly, the **composition of claim 1 is not limited to any particular concentration, ratio, etc. of its components.** For example, claim 1 encompasses the compositions existing at day 4 in Figures 10- 12 of the 4 13 Application (see FF 9- 10). Therefore, we agree with the Examiner that Appellants' showing of unexpected results is not commensurate in scope with the claimed invention.

(Decision, page 9, line 20 to page 10, line 4).

Accordingly, claim 1 has been amended to recite "wherein said antioxidative sesame component is 0.5% or more to said polyunsaturated fatty acid or its salt or ester, and ascorbic acid or an ascorbyl fatty acid ester is 0.01% or more to said polyunsaturated fatty acid or its salt or ester."

The Decision also alleged as follows:

Furthermore, it is not enough show that the results are different when sesamol and ascorbyl palmitate are used together, as opposed to separately. Appellants must show that the results are unexpectedly different. Klosak, 455 F.2d at 1080. Here, Appellants have merely demonstrated a difference and, therefore, have not met their burden of persuasion. In this regard, we note that Appellants' own Background Section states that "[i]n order to enhance the oxidative stability of oils and fats, various types of antioxidants have been used . . . in combination, or a synergist, such as . . . ascorbic acid, is added to the antioxidant to enhance the antioxidant properties" (Spec. 3:24-4:4).

(Decision, page 10, lines 5-14).

Fig. 1 of the present application shows the absorbed oxygen in two days after storage at 60°C by fish oil containing 0.5 wt% δ -tocopherol. Also, Fig. 5 of the present application shows the absorbed oxygen in four days after storage at 60°C by fish oil containing 0.5 wt% δ -tocopherol. The addition of sesamol alone or ascorbyl palmitate alone does not significantly prevent the absorption of oxygen. The addition of ascorbyl palmitate alone rather increases the absorbed oxygen. Thus, addition of sesamol alone or ascorbyl palmitate alone have no significant effect. However, the addition of the combination of sesamol and ascorbyl palmitate dramatically decreases the absorption of oxygen.

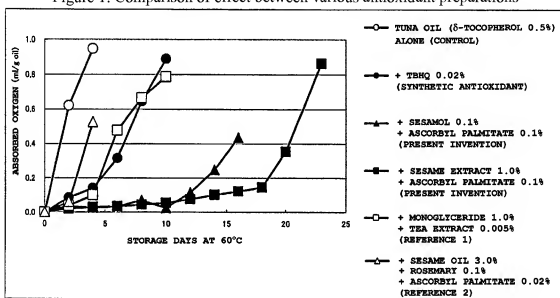
It was not expected for a person of ordinary skill in the art that the combination of sesamol and ascorbyl palmitate can dramatically decrease the absorption of oxygen because neither of sesamol and ascorbyl palmitate had significant effect when these are added alone.

The results are different in the characteristic when sesamol and ascorbyl palmitate are used together, as opposed to separately. This is undoubtedly unexpected synergistic result.

There are an infinite number of antioxidant combinations and it is not possible to test every combination on every target. Under the present circumstances, trial and error has been repeated for developing an antioxidant that is more suitable for the intended method and purpose of use.

Although tocopherol, ascorbic acid and sesamol are known as natural antioxidants, many antioxidative substances contained in natural products are not supplied at reasonable prices or in sufficient amounts because they are minor components and/or because no market has been established for them. Thus, even if these components were known from documents, they were not sufficiently studied for further practical applications.

Figure 1: Comparison of effect between various antioxidant preparations

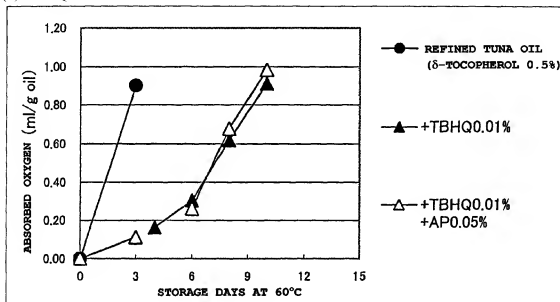


The present inventors have found that the combined use of sesamol and ascorbyl fatty acid ester produce an unexpectedly high synergistic effect. As shown in Figure 1, this combined use shows a much higher effect than TBHQ, which is one of the synthetic antioxidants permitted for use in the field of foods. The inventors have also found that a higher synergistic effect is produced when sesame extract containing a mixture of antioxidative sesame components is used in combination with ascorbyl palmitate than when sesamol alone is combined with ascorbyl palmitate. It is outstanding to succeed in achieving an advantageous effect over synthetic antioxidants by combining naturally-occurring antioxidative substances. Moreover, the finding that substances

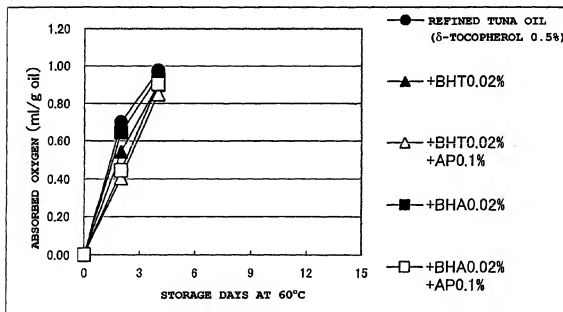
known as antioxidants produce a more pronounced effect when used as a mixture than when used alone cannot be easily obtained from the citations or other documents. The test conducted in Figure 1 is a storage test carried out under extreme conditions as high as 60°C; the differences observed under such extreme conditions will become greater at room temperature or lower temperatures. The antioxidant preparation of the present invention therefore enables the maintenance of oxidative stability for a very long period of time.

To further demonstrate that the effect of the present invention is not easily achieved, tests were conducted to study the combined use of antioxidative substances known to have an antioxidative effect with ascorbyl palmitate known to have a synergy effect. As shown in Figure 2 below, ascorbyl palmitate was added to each of synthetic antioxidants TBHQ and BHT, as well as natural antioxidative substances gallic acid, rosemary extract, and γ -oryzanol and ferulic acid contained in, e.g., rice bran to observe whether their antioxidative effect was enhanced, indicating that there was little influence on the enhancement of their antioxidative effect. This result also indicates that the combined effect of sesame-derived antioxidants and ascorbyl fatty acid ester was an unexpected effect, much more pronounced than that easily obtained by combination of known antioxidants.

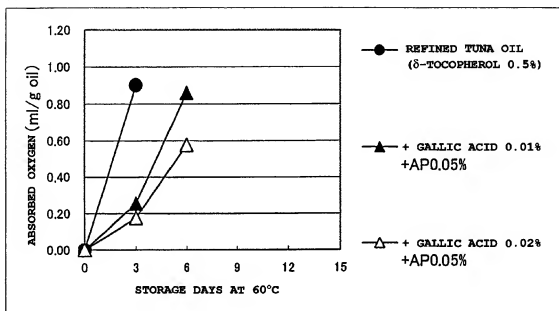
Figure 2: Combined effect of ascorbyl palmitate on natural antioxidative substances (1) to (6)
(1) TBHQ



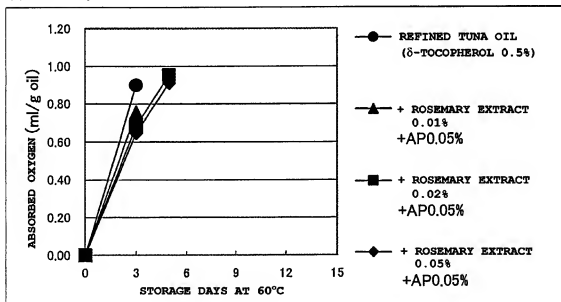
(2) BHT

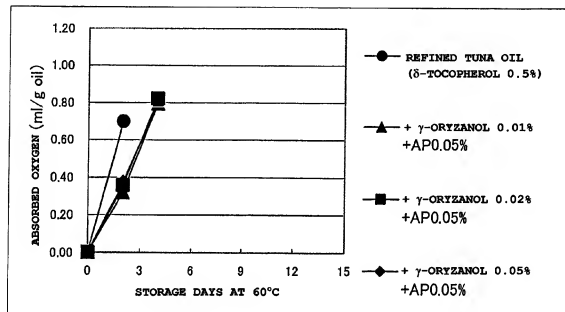


(3) Gallic acid

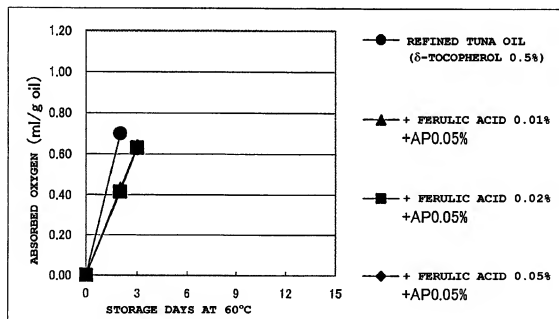


(4) Rosemary extract



(5) γ -Oryzanol

(6) Ferulic acid



For the reasons detailed above, the effects of the present invention were not expected by those skilled in the art even when combining well-known matters disclosed in the prior art.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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